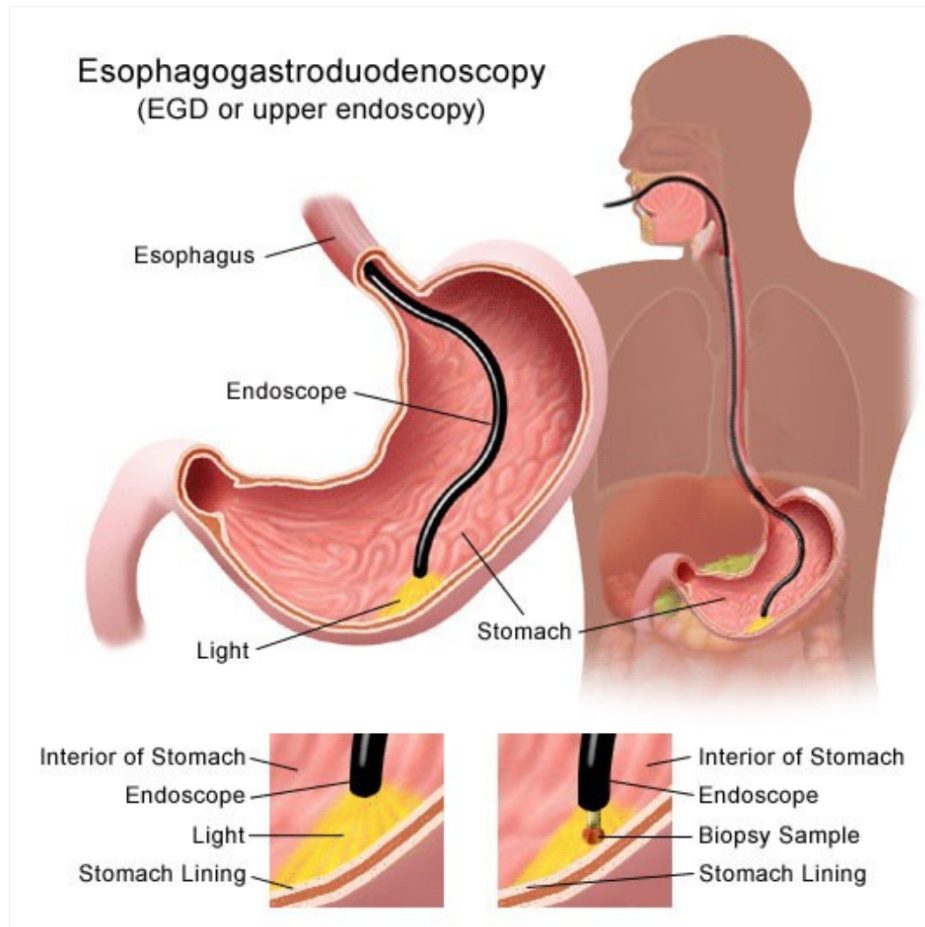


How does a gastroscope work?



A gastroscope, used in gastroscopy (also known as upper endoscopy), is a medical device that allows doctors to visualize the esophagus, stomach, and duodenum (the first part of the small intestine). It works by using a long, thin, flexible tube with a light source and camera at the tip. The images captured by the camera are transmitted to a monitor, enabling the doctor to examine the internal lining of these organs.

A gastroscope, used for examining the upper gastrointestinal tract, consists of several key components: a control section, an insertion tube, and a distal tip. The control section houses the mechanisms for maneuvering the scope and controls for air/water and suction. The insertion tube is the flexible part that is inserted into the patient. The distal tip houses the objective lens, light source, and channels for irrigation, suction, and instrument passage.

Here's a more detailed breakdown:

1. Control Section:

Angulation Knobs:

These knobs control the bending section of the scope, allowing for navigation within the body.

Air/Water and Suction Controls:

These buttons/valves manage the flow of air and water for insufflation (inflating the stomach) and cleaning the lens, as well as suctioning fluids and debris.

Instrument Port:

This port allows for the passage of various instruments, like biopsy forceps or snares, into the

body for diagnostic and therapeutic procedures.

Umbilical Cord:

Connects the control section to the video processor and other external components.

2. Insertion Tube:

Flexible Shaft: This is the long, flexible tube that is inserted into the patient's body.

Bending Section: The last few centimeters of the insertion tube that allow for deflection and maneuverability.

3. Distal Tip:

Objective Lens: The lens that captures the image of the internal organs.

Light Source: Provides illumination for the examination.

Irrigation/Insufflation Channels: Deliver air and water to the tip for cleaning and inflating the stomach.

Suction Channel: Used to aspirate fluids, air, and tissue samples.

Instrument Channel: Allows for the passage of various instruments.

4. Other Important Components:

Image Relay System:

In older endoscopes, this might include a series of

lenses and prisms to transmit the image. Modern endoscopes often use a CCD (charge-coupled device) sensor to capture the image electronically.

Light Transmission System:

Typically involves optical fibers to transmit light from a light source (often external) to the tip of the scope.

Video Processor:

Processes the images captured by the endoscope and displays them on a monitor.

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<https://archive.org/details/@wazefapress>

Resources:

<https://pmc.ncbi.nlm.nih.gov/articles/PMC4299329/>

<https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/gastrointestinal-endoscopy>

<https://www.ncbi.nlm.nih.gov/books/NBK482422/>

<https://www.sciencedirect.com/topics/agricultural->

and-biological-sciences/gastrointestinal-endoscopy

<https://safesurgery.com.au/services/colonoscopy-gastroscopy/>

<https://www.intechopen.com/chapters/48196>

<https://pmc.ncbi.nlm.nih.gov/articles/PMC2990396/>

<https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/gastrointestinal-endoscopy>

<https://en.m.wikipedia.org/wiki/Endoscope>

<https://remma.fr/en/model/fiber-bronchoscope-fb-8v>